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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/825,783	04/04/2001	Jian-Feng Chen	2001 P 05879 US	1315

7590 01/16/2004

Siemens Corporation
Attn: Elsa Keller, Legal Administrator
Intellectual Property Department
186 Wood Avenue South
Iselin, NJ 08830

EXAMINER

PATEL, JAYANTI K

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 01/16/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/825,783

Applicant(s)

CHEN ET AL.

Examiner

Jayanti K. Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-11 is/are rejected.
- 7) ☒ Claim(s) 6 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings filed on April 4, 2001 are acceptable subject to correction of the informalities indicated on the attached "Notice of Draftperson's Patent Drawing Review," PTO-948. In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.

Claim Objections

2. The claim 5 and 11 are objected to because they include reference characters that are not enclosed within parentheses.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).

Claim 5, lines 8-10, limitations of "(302 and 304; and" appear to be missing a close parentheses.

Claim 5, line 2, performing step (206) appear to be in error. As per figure 2, performing step is (204) and providing step is (206).

Claim 11, line 3, performing step (206) appear to be in error. As per figure 2, performing step is (204) and providing step is (206).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4, 8, and 10 recite the limitation: "the providing step (206)(b)" in line 1.

There is insufficient antecedent basis for this limitation in the claim.

The use of step (206) (a) or (b) appear to be indefinite and need to be used in proper context of previous steps or figure elements.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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7. Claims 1-3, 5, 7-9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hossack et al. (US 5,873,830) in view of Ophir et al. (US 5,178,147).

Regarding claims 1-3, Hossack discloses an ultrasound imaging system for improving the resolution comprising the steps of:

performing a motion analysis on at least two selected Regions of Interest (ROI) before and after tissue compression (column 22, lines 25-55 and column 7, line 64 through column 8, line 10).

Hossack discloses a medical imaging system for imaging tissue under a predetermined compression profile without specific details regarding the steps of providing a strain estimate and comparing the strain estimates.

In the same field of endeavor, however, Ophir discloses an elastographic measurement and imaging system comprising the steps of providing a strain estimate and comparing the strain estimates for at least two ROIs (column 9, lines 9-47).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the steps of providing and comparing strain estimates as taught by Ophir in the system of Hossack because Ophir provides Hossack with a system which allows Hossack for accurate, localized determination and imaging of important parameter, compressibility, which has been used qualitatively in medicine for a very long time.

As to claims 2-3, Hossack discloses the steps of generating a plurality of blocks and utilizing block-matching technique touching a boundary of the two regions (column

10. lines 40-60 and column 13, lines 20-34). All other limitations of claims 2-3 are similarly analyzed as claim 1 above.

As to claim 5, claim 5 recites substantially very similar limitations as claims 1-3 above and is similarly analyzed.

As to claims 7-9, claims 7-9 are a computer readable medium claims corresponding to method claims 1-3 above and are similarly analyzed.

As to claims 7-9, the steps claimed as computer readable medium is nothing more than restating the function of the specific components of the method as claimed above and therefore, it would have been obvious, considering the aforementioned rejection for the method claims 1-3.

As to claim 11, the steps claimed as computer readable medium having program instructions is nothing more than restating the function of the specific components of the method as claimed above and therefore, it would have been obvious, considering the aforementioned rejection for the method claims 1-3.

Allowable Subject Matter

8. Claims 4, 6, 10 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, provided the rejections of claims 4 and 10 is overcome under 35 USC USC § 112 above.

Other prior art cited

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9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chandler (US 5,860,931) discloses an ultrasound imaging system for measuring perfusion of a tissue of interest.

Konofagou et al. (US 6,494,834) discloses a strain estimator in elastography system.

Laird et al. (US 5,833,634) discloses a tissue examination system using one or more transducers.

Ehman et al. (US 5,825,186) discloses a system for producing stiffness-weighted MR images.

Guracar et al. (US 5,961,460) discloses an ultrasound image enhancement system.

Pele (US 5,195,525) discloses a noninvasive myocardial motion analyzing system.

Hall et al (US 6,508,768) discloses an ultrasonic elasticity imaging system.

Sarvazyan (US 5,678,565) discloses an ultrasonic elasticity imaging system.

Lorenz et al. ("Diagnosis of Prostate Carcinoma using Multicompression Strain Imaging: Data Acquisition and First in Vivo Results", IEEE Ultrasonics Symposium, 1998, pages 1761-1764) discloses a strain measurement and imaging system (see Figure 3).

Contact information


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jayanti K. Patel whose telephone number is (703) 308-7728. The examiner can normally be reached on Monday-Friday (7:00-4:00), alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

JKP



Jayanti K. Patel
Primary Examiner

January 7, 2004